

IN THE CLAIMS

1. (Currently Amended) A communication method comprising:
establishing (15) a wideband communication link between a first device (11, 50, 60) and a second device (12, 51, 61),
transmitting (16) a first set of consecutive data bits from said first device to said second device by means of a first set of pulses,
transmitting (17) a second set of bits from said second device to said first device at least partially simultaneously or at least partially interlaced with said first set of bits characterized by:
negotiating a pulse repetition frequency (PRF) for said communication link, at least when PRF for the communication link is not already known, and
negotiating on the basis of the PRF of said communication link, whether said second set of bits is sent interlaced with the first set of bits.
2. (Original) The method of claim 1, wherein said pulses are narrow pulses.
3. (Currently Amended) The method of claim 1 or 2, wherein said pulses are spaced apart in time domain by a certain guard time and said second set of bits is transmitted by means of a second set of pulses sent during said guard times.
4. (Original) The method of claim 3 further comprising:
negotiating on the basis of the PRF of said communication link, whether said guard times are used for sending said second set of bits.
5. (Currently Amended) The method of claim 1 or 2, wherein a separate radio is used for transmitting said second set of bits.
6. (Original) The method of claim 5, wherein said separate radio is a Wireless Personal Area Network (WPAN) radio.

7. (Currently Amended) The method of claim 5 or 6, wherein said second set of bits is transmitted as payload in a data channel of the separate radio.

8. (Currently Amended) The method of ~~any one of the preceding claims 1~~, wherein said second set of bits comprises control data.

9. (Currently Amended) The method of ~~any one of the preceding claims 1~~, wherein said wideband communication link is an ultra-wideband (UWB) communication link.

10. (Currently Amended) A system comprising
a first device (11, 50, 60) and a second device (12, 51, 61) configured to establish a wideband communication link between said first and second devices, said first device comprising a transmitter configured to send a first set of consecutive data bits to said second device and said second device comprising a receiver configured to receive said first set of consecutive data bits from said first device, said first set of bits being sent by means of a first set of pulses,

 said second device (12, 51, 61) further comprises a transmitter (42) configured to send a second set of bits to said first device at least partially simultaneously or at least partially interlaced with receiving said first set of bits from said first device, and

 said first device (11, 50, 60) further comprises a receiver (46) configured to receive said second set of bits from said second device at least partially simultaneously or at least partially interlaced with sending said first set of bits to said second communication device, characterized in that the first device (11, 50, 60) and the second device (11, 50, 60) are further configured:

 to negotiate a pulse repetition frequency (PRF) for said communication link, at least when PRF for the communication link is not already known, and

 to negotiate on the basis of the PRF or said communication link, whether said second set of bits is sent interlaced with the first set of bits.

11. (Currently Amended) A device (12, 51, 61) comprising

a receiver (46) configured to receive a first set of consecutive data bits from another device, said first set of bits being sent by means a first set of pulses and a transmitter (42) configured to send a second set of bits to said another device at least partially simultaneously or at least partially interlaced with receiving said first set of bits from said another device, characterized in that said device further comprises:

means for negotiating a pulse repetition frequency (PRF) for said communication link, at least when PRF for the communication link is not already known, and

means for negotiating on the basis of the PRF of said communication link, whether said second set of bits is sent interlaced with the first set of bits.

12. (Original) The device of claim 11, wherein said pulses are narrow pulses.

13. (Currently Amended) The device of claim 11 or 12, wherein said receiver is configured to receive said first set of pulses so that there is a certain guard time between the pulses, and
said transmitter is configured to send a second set of pulses forming said second set of bits during said guard times.

14. (Original) The device of claim 13 further comprising:

means for negotiating with said another device pulse repetition frequency (PRF) for said first set of pulses, at least when said PRF is not already known, and
means for negotiating on the basis of said PRF, whether said guard times are used for sending said second set of bits.

15. (Currently Amended) The device of claim 11 or 12, wherein said transmitter and said receiver employ different radio technologies.

16. (Original) The device of claim 15, wherein said transmitter is a Wireless Personal Area Network (WPAN) radio transmitter.

17. (Currently Amended) The device of ~~any one of~~ claims 11-16, wherein said receiver is an ultrawideband (UWB) receiver.

18. (Currently Amended) The device of ~~any one of~~ claims 11-17, wherein said second set of bits comprises control data.

19. (Currently Amended) The device of ~~any one of~~ claims 11-18, wherein said device is one of the following: a communication device, a mobile phone, a laptop computer, a desktop computer, a Personal Digital Assistant (PDA), and a digital camera.

20. (Currently Amended) A device ~~(11, 50, 60)~~ comprising
a transmitter ~~(42)~~ configured to send a first set of consecutive data bits to another device by means of a first set of pulses, and
a receiver ~~(46)~~ configured to receive a second set of bits from said another device at least partially simultaneously or at least partially interlaced with sending said first set of bits to said another device, characterized in that said device further comprises:

means for negotiating a pulse repetition frequency (PRF) for said communication link, at least when PRF for the communication link is not already known, and

means for negotiating on the basis of the PRF of said communication link, whether said second set of bits is sent interlaced with the first set of bits.

21. (Original) The device of claim 20, wherein said pulses are narrow pulses.

22. (Currently Amended) The device of claim 20 ~~or 21~~, wherein
said transmitter is configured to send said first set of pulses so that there is a certain guard time between the pulses, and
said receiver is configured to receive a second set of pulses forming said second set of bits during said guard times.

23. (Original) The device of claim 22 further comprising:

means for negotiating with said another device pulse repetition frequency (PRF) for said first set of pulses, at least when said PRF is not already known, and means for negotiating on the basis of said PRF, whether said guard times are used for receiving said second set of bits.

24. (Currently Amended) The device of claim 20 or 21, wherein said transmitter and said receiver employ different radio technologies.

25. (Original) The device of claim 24, wherein said receiver is a Wireless Personal Area Network (WPAN) radio receiver.

26. (Currently Amended) The device of ~~any one of~~ claims 20-25, wherein said transmitter is an ultrawideband (UWB) transmitter.

27. (Currently Amended) The device of ~~any one of~~ claims 20-26, wherein said second set of bits comprises control data.

28. (Currently Amended) The device of ~~any one of~~ claims 20-27, wherein said device is one of the following: a communication device, a mobile phone, a laptop computer, a desktop computer, a Personal Digital Assistant (PDA), and a digital camera.

29. (Original) A computer program executable in a communication device, the communication device being configured to receive a first set of consecutive data bits from another device, said first set of bits being sent by means of pulses, said computer program controlling said communication device to

send a second set of bits to said another device at least partially simultaneously or at least partially interlaced with receiving said first set of bits from said another device, characterized by said computer program further controlling said communication device

to negotiate a pulse repetition frequency (PRF) for said communication link, at least when PRF for the communication link is not already known, and

to negotiate on the basis of the PRF of said communication link, whether said second set of bits is sent interlaced with the first set of bits.

30. (Original) The computer program of claim 29 stored on a carrier.

31. (Original) A computer program executable in a communication device, the communication device being configured to send a first set of consecutive data bits to another device by means of pulses, said computer program controlling said communication device to

receive a second set of bits from said another device at least partially simultaneously or at least partially interlaced with sending said first set of bits to said another device, characterized by said computer program further controlling said communication device:

to negotiate a pulse repetition frequency (PRF) for said communication link, at least when PRF for the communication link is not already known, and

to negotiate on the basis of the PRF of said communication link, whether said second set of bits is sent interlaced with the first set of bits.

32. (Original) The computer program of claim 31 stored on a carrier.

33. (Currently Amended) A communication module (40) comprising:

a receiver (46) configured to receive a first set of consecutive data bits from another device, said first set of bits being sent by means a first set of pulses and

a transmitter (42) configured to send a second set of bits to said another device at least partially simultaneously or at least partially interlaced with receiving said first set of bits from said another device, characterized by said communication module further comprising:

means for negotiating a pulse repetition frequency (PRF) for said communication link, at least when PRF for the communication link is not already known, and

means for negotiating on the basis of the PRF of said communication link, whether said second set of bits is sent interlaced with the first set of bits.

34. (Currently Amended) A communication module (40) comprising
a transmitter (42) configured to send a first set of consecutive data bits to
another device by means of a first set of pulses, and
a receiver (46) configured to receive a second set of bits from said another
device at least partially simultaneously or at least partially interlaced with sending
said first set of bits to said another device, characterized by said communication
module further comprising:
means for negotiating a pulse repetition frequency (PRF) for said
communication link, at least when PRF for the communication link is not already
known, and
means for negotiating on the basis of the PRF of said communication link,
whether said second set of bits is sent interlaced with the first set of bits.